



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

---

**Subject:** STANDARDS FOR AIRPORT  
SIGN SYSTEMS

**Date:** XX/XX/04  
**Initiated by:** AAS-300

**AC No:** 150/5340-18D  
**Change:**

---

**1. PURPOSE.** Advisory Circular (AC) 150/5340-18, Standards for Airport Sign Systems, has been revised to incorporate new mandatory hold signs to correspond to changed standards for the Precision Obstacle Free Zone (POFZ) and CAT II/III operations. These changes correspond to revisions being made to AC 150/5300-13, Airport Design, that will change the Precision Object Free Area (POFA) to the POFZ and incorporate new separation standards for taxiways that parallel runways used for certain low visibility operations.

The Federal Aviation Administration (FAA) has revised low visibility operation procedures, and these revised procedures require that the POFZ be clear when an aircraft on a vertically guided final approach is within 2 nautical miles of the runway threshold and the reported ceiling is below 250 feet and/or visibility less than  $\frac{3}{4}$  statute mile (runway visual range below 4,000 feet). If the POFZ is not clear, the minimum authorized height about touchdown (HAT) and visibility is 250 feet and  $\frac{3}{4}$  statute mile. The POFZ is considered clear even if the wing of the aircraft holding on a taxiway waiting for runway clearance penetrates the POFZ; however, neither the fuselage nor the tail may infringe on the POFZ (see AC 150/5300-13, *Airport Design*, and FAA Order 8260.3B, *United States Standard for Terminal Instrument Procedures*).

Further, the FAA is currently revising Terminal Instrument Procedures (TERPS) standards for the separation distance between a runway equipped for CAT II/III operations and the parallel taxiway that requires aircraft to hold for a runway, in certain circumstances, at a location other than the runway holding position.

Accordingly, the FAA has developed sign standards to assist airport operators designate (1) the POFZ holding position in those instances where a taxiway penetrates the POFZ, and (2) the alternative holding position on a taxiway during CAT II/III operations to maintain adequate aircraft separation. The FAA also has made a corresponding change to marking standards contained in AC 150/5340-1, *Standards for Airport Markings*.

Figures throughout this AC also have been revised to reflect changes made to AC 150/5345-44, *Specification for Runway and Taxiway Signs*, and in some case, several sign illustrations have been combined into a single figure. As a result, most figures have been renumbered.

**2. CANCELLATION.** Advisory Circular 150/5340-18C, Standards for Airport Sign Systems, dated July 31, 1991, is cancelled.

**3. PRINCIPAL CHANGES.** Except for minor changes involving punctuation, spelling and grammar, all changes are marked with a vertical line in the left margin of the page. The following principal changes have been made:

- a. CONTENTS has been revised to reflect new page numbers and figure numbers and titles.
- b. Paragraph 1, GENERAL, and Paragraph 3, COMPONENTS OF A SIGN SYSTEM, have been revised to include references to the POFZ and the holding position for CAT II/III operations.
- c. Figure 1, Typical Holding Position Sign for Runway, is now Figure 2, Examples of Mandatory Instructions Signs.

- d.** Figure 2, Example for Designating Taxiways, has been redesignated Figure 1, Example of Taxiway Designations.
- e.** Paragraph 5.c., Holding Position Signs for ILS Critical Areas, has been revised to include standards for signing the boundary of the POFZ.
- f.** New Paragraph 5.e., Holding Position Sign for CAT II/III Operations, establishes standards for signing the holding position for CAT II/III operations. Existing Paragraph 5.e, No Entry Sign, has been redesignated as Paragraph 5.f.
- g.** Figure 3, Application Examples for Holding Position Signs, has been revised to show the location of signs and marking for the POFZ and the CAT II/III operations holding position.
- h.** Figure 5, ILS Holding Position Sign; Figure 6, Holding Position Sign for Approach Area; and Figure 7, No Entry Sign, have been moved to new Figure 2, Examples of Mandatory Instructions Signs, and the sign illustrations have been revised to include a black outline around the white inscriptions. This change corresponds to changes made to AC 150/5345-44.
- i.** Figure 8, Examples of Siting Holding Position Signs for Non-typical Conditions, has been renamed and redesignated Figure 5.
- j.** Figure 9, Holding Position Signs at Runway Intersections, has been renamed and redesignated Figure 6.
- k.** Figure 10, Sign Applications for ILS Critical Areas, has been redesignated Figure 7.
- l.** Figure 11, Taxiway Location Sign; Figure 12, Runway Location Sign; Figure 13, Runway Safety Area/OFZ Boundary Signs and Runway Approach Area Boundary Sign; and Figure 14, ILS Critical Area Boundary Sign, have been moved to new Figure 8, Examples of Location Signs. The title of the ILS Critical Area Boundary Sign has been revised to include the terms “POFZ” and “CAT II/III Operations.”
- m.** Paragraph 6.d., ILS Critical Area Sign, has been retitled “ILS Critical Area/POFZ Boundary and CAT II/III Operations Sign” and revised to include references to the POFZ and the holding position for CAT II/III operations.
- n.** Figure 15, Direction Sign; Figure 17, Typical Outbound Destination Sign; Figure 18, Outbound Destination Sign to Different Runways; and Figure 19, Example of an Inbound Destination Sign, have been moved to new Figure 10, Examples of Direction Signs, Destination Signs, and Taxiway Ending Marker.
- o.** Figure 16, Taxiway Ending Marker, has been renamed and redesignated Figure 9.
- p.** Figure 20, Signing Examples, has been redesignated Figure 11 and retitled “Examples of Signs at a Taxiway/Taxiway Intersection.”
- q.** Figure 21, Signing an Intersection, has been renamed and redesignated Figure 12.
- r.** Figure 22, Typical Runway Distance Remaining Sign, has been renamed and redesignated Figure 13.
- s.** Figure 23, Runway Distance Remaining Sign Configuration, has been redesignated Figure 14.

#### **4. APPLICATION.**

**a.** By January 1, 2007, airport operators must comply with POFZ/TERPS marking and sign standards, as appropriate. After this date, approach and departure procedures may be affected if the airport operator has not complied with these new standards. However, prior to the 2007 compliance date, an airport operator must comply with new POFZ/TERPS standards, as applicable, if there is modification of runway/taxiway configuration (including new displacement of threshold) or a modification of the airport environment that could potentially reduce the existing level of safety, unless an ongoing Environmental Impact Study will not allow for compliance with the new standards.

**b.** Holding position signs used to designate the POFZ boundary and the CAT II/III holding position must be lighted if the associated runway is lighted, even if the taxiway on which they are installed is unlighted.

**c.** The FAA recommends that all airport operators install a system of taxiway guidance signs in accordance with the standards in Chapter 1 of this circular. Installing the components of the taxiway guidance sign system in accordance with Paragraph 3 of Chapter 1 represents an acceptable means of compliance with the requirements of Federal Aviation Regulation, Part 139, for those airports that are certificated under this regulation.

David L. Bennett  
Director, Office of Airport Safety and Standards

## CONTENTS

### CHAPTER 1. TAXIWAY GUIDANCE SIGNS

	<u>Page</u>
1. General.....	1
2. Planning.....	1
3. Components of a Sign System.....	1
4. Developing Taxiway Designations.....	2
5. Mandatory Instruction Signs.....	4
a. Holding Position Sign for Taxiway/Runway Intersections.....	4
b. Holding Position Sign for Runway/Runway Intersections.....	4
c. Holding Position Sign for ILS Critical Areas/ <b>POFZ Boundary</b> .....	4
d. Holding Position Sign for Runway Approach Areas.....	5
e. <b>Holding Position Sign for CAT II/III Operations</b> .....	5
<b>f. No Entry Sign</b> .....	5
6. Location Signs.....	12
a. Taxiway Location Sign.....	12
b. Runway Location Sign.....	12
c. Runway Safety Area/OFZ and Runway Approach Boundary Sign.....	12
d. ILS Critical Area/ <b>POFZ Boundary</b> and <b>CAT II/III Operations</b> Sign.....	12
7. Direction Signs.....	12
a. Taxiway Direction Sign.....	12
b. Runway Exit Sign.....	12
8. Taxiway Ending Marker.....	14
9. Destination Signs.....	14
a. Outbound Destination Sign.....	14
b. Inbound Destination Sign.....	14
10. Roadway Signs.....	15
11. Information Signs.....	15
12. General Signing Conventions.....	15
13. Sign Size And Location.....	19
14. Sign Operation.....	19
15. Pavement Marking Signs.....	19
16. Installation.....	20
17-19. Reserved.....	20

### CHAPTER 2. RUNWAY DISTANCE REMAINING SIGNS

20. General.....	22
21. Description.....	22
22. Configuration.....	22
a. Preferred Method.....	22
b. Alternate Method #1.....	22
c. Alternate Method #2.....	22
23. <b>Sign</b> Operation.....	22
24. <b>Size and Location</b> .....	22

25. Installation .....	<u>Page</u> <b>22</b>
------------------------	--------------------------

## APPENDIX 1. AIRPORT SIGNING EXAMPLES

1. General.....	<b>25</b>
2. <b>Sign</b> Example 1—Complex Airport .....	<b>25</b>
3. <b>Sign</b> Example 2—Airport with Two Intersecting Runways.....	<b>26</b>
4. <b>Sign</b> Example 3—Airport with a Single Runway.....	<b>27</b>

## FIGURES

<b>Figure 1. Example of Taxiway Designations .....</b>	<b>3</b>
<b>Figure 2. Examples of Mandatory Instruction Signs.....</b>	<b>6</b>
<b>Figure 3. Application Examples for Holding Position Signs .....</b>	<b>7</b>
<b>Figure 4. Runway Location Signs and Arrows on Holding Position Signs .....</b>	<b>8</b>
<b>Figure 5. Examples of Holding Position Sign Locations for Non-typical Conditions .....</b>	<b>9</b>
<b>Figure 6. Examples of Holding Position Signs at Runway/Runway Intersections .....</b>	<b>10</b>
<b>Figure 7. Sign Applications for ILS Critical Areas .....</b>	<b>11</b>
<b>Figure 8. Examples of Location Signs .....</b>	<b>13</b>
<b>Figure 9. Taxiway Ending Marker.....</b>	<b>14</b>
<b>Figure 10. Examples of Direction Signs, Destination Signs, and Taxiway Ending Marker .....</b>	<b>16</b>
<b>Figure 11. Examples of Signs at Taxiway/Taxiway Intersections .....</b>	<b>18</b>
<b>Figure 12. Examples of Signs at a Complex Taxiway/Taxiway Intersection.....</b>	<b>19</b>
<b>Figure 13. Runway Distance Remaining Sign.....</b>	<b>23</b>
<b>Figure 14. Runway Distance Remaining Sign Configurations .....</b>	<b>24</b>
<b>Figure A-1. Signing Example 1—Complex Airport.....</b>	<b>28</b>
<b>Figure A-2. Signing Example 2 —Airport with Two Intersecting Runways.....</b>	<b>29</b>
<b>Figure A-3. Signing Example 3—Airport with a Single Runway .....</b>	<b>30</b>

## TABLES

Table 1. Location Distances for Holding Position Markings .....	<b>20</b>
Table 2. Location Distances for Taxiway Guidance Signs.....	<b>21</b>
Table 3. Perpendicular Distances for Taxiway Intersection Markings from Centerline of Crossing Taxiway.....	<b>21</b>
Table 4. Location Distances for Runway Distance Remaining Signs .....	<b>23</b>



## CHAPTER 1. TAXIWAY GUIDANCE SIGNS

---

**1. GENERAL.** A properly designed and standardized taxiway guidance sign system is an essential component of a surface movement guidance control system necessary for the safe and efficient operation of an airport. It should—

- a. Provide the ability to easily determine the designation or name of any taxiway on which the aircraft is located.
- b. Readily identify routes toward a desired destination.
- c. Indicate mandatory holding positions, **including holding positions used to maintain aircraft separation during low-visibility weather operations.**
- d. Identify boundaries for approach areas, Instrument Landing System (ILS) critical areas, **the Precision Obstacle Free Zone (POFZ)**, and runway safety areas/obstacle free zones (OFZ).

**2. PLANNING.** Users of this AC should recognize that the functional layout of each airport is different. Although two airports may have similar runway and taxiway configurations, the number of signs needed to provide the pilot with the necessary taxiway guidance information may differ. This difference can be attributed to such factors as ground traffic patterns, the presence of an air traffic control tower, the location of terminals, fixed-base operators and other facilities, the airport's instrument weather capability, the number of aircraft operations, and types of operators. In view of the differences in each airport's functional layout, the airport operator should work with the FAA to ensure that a taxiway guidance sign system in accordance with the standards of this AC is achieved whenever practicable. In developing the system, it is advisable and strongly recommended that the airport operator consult with the airport users.

**3. COMPONENTS OF A SIGN SYSTEM.** Overall safety is enhanced by a standardized system of signs at all airports. Paragraphs 5, 6, 7, and 9 contain standards for different types of taxiway guidance signs and along with Paragraphs 12, 13, 14, and 16 provide information on their installation. Figures included in this chapter, as well as Appendix 1, show graphic depictions of these signs and common applications. However, except for holding position signs, it is virtually impossible to prescribe the location and types of signs that should be installed as part of a taxiway guidance sign system at a particular airport due to the varying functional layouts discussed in Paragraph 2. In this regard, the signs described in the aforementioned paragraphs should be viewed as the inventory of signs available to develop a taxiway guidance sign system on an airport. In deciding where signs should be installed as part of this system at a particular airport, the following guidelines should be applied:

- a. Install a holding position sign and taxiway location sign at the holding position on any taxiway that provides access to a runway.
- b. **When it is necessary to protect the navigational signal, airspace, or the runway safety area,** install a holding position sign on any taxiway at the boundary of the ILS critical area, **the POFZ** or the runway approach area, **and as appropriate, at the CAT II/III operations holding position to ensure aircraft separation.**
- c. Install a holding position sign on any runway where that runway intersects another runway.
- d. Install a sign array consisting of taxiway direction signs prior to each taxiway/taxiway intersection if an aircraft would normally be expected to turn at or hold short of the intersection. The direction signs in the array should include a sign panel (taxiway designation and an arrow) for each taxiway that an aircraft would be expected to turn onto or hold short of. A taxiway location sign should be included as part of the sign array unless it is determined to be unnecessary. If an aircraft normally would not be expected to turn at or hold short of the intersection, the sign array is not needed unless the absence of guidance would cause confusion.
- e. Install a runway exit sign along each runway for each normally used runway exit.
- f. At uncontrolled airports, consider whether it is preferable to substitute destination signs for the signs described in Paragraphs 3.d. and 3.e.

g. Install standard highway stop signs on vehicle roadways at the intersection of each roadway with a runway or taxiway. For roadway intersections with taxiways, a standard highway yield sign may be used in lieu of the stop sign.

h. Install additional signs on the airfield where they are necessary to eliminate confusion or provide confirmation. For example, it may be necessary to install a taxiway location sign at the entrance to a taxiway from an apron area where several such entrances exist. Similarly, on runway exit taxiways where air traffic control regularly requests pilots to report clear of the runway, it may be beneficial to install a runway safety area/OFZ boundary sign to assist the pilot in making this report. At complex intersections or intersections along low visibility routes, it may be beneficial to install location signs on the far side of the intersection so the pilot can confirm that the correct turn has been made.

**4. DEVELOPING TAXIWAY DESIGNATIONS.** The first step in designing a taxiway guidance sign system is to develop a simple and logical method for designating taxiways. The following general guidelines should be followed:

a. Keep it simple and logical.

b. Use letters of the alphabet for designating taxiways. Optimally, designation of the taxiways should start at one end of the airport and continue to the opposite end, e.g., east to west or north to south (see Figure 1).

c. Where there are more taxiways than letters of the alphabet, use double letters such as "AA." An exception is permitted for a major taxiway having numerous stub exits, such as a taxiway parallel to a runway or a taxiway adjacent to a ramp area. In such instances, the short taxiways could be designated "A1," "A2," "A3," etc. Numbers alone and the letters "I" and "O" should not be used since they could be mistaken for a runway number. Also, the letter "X" should not be used since a sign with an "X" could be misconstrued as indicating a closed taxiway. Number and letter combinations should not result in confusion that might allow a taxiway designation to be mistaken for that of a runway. For example, if an airport has a runway "4L," a taxiway designation of "L4" should not be used.

d. Designate all separate, distinct taxiway segments.

e. Ensure no separate, distinct taxiway has the same designation as any other taxiway.

f. Do not change taxiway designations if there is no significant change in direction of the taxiing route. However, when the overall system design indicates a need, such a change can be made and appropriately signed (see Figures 11c and 11d). Such changes should be made only at intersections.

g. Avoid designating taxiways by reference to a direction of travel or to a physical object. This includes the use of terms such as "inner," "outer," "parallel," and "bridges." Such informal nicknames or abbreviations should not be used on taxiway guidance signs.

h. In a NOTAM regarding taxiways, refer to the formal designation that appears on the taxiway guidance sign.





**5. MANDATORY INSTRUCTION SIGNS.** Mandatory instruction signs have white inscriptions on a red background. They denote an entrance to a runway or critical area. At controlled airports, vehicles and aircraft are required to hold at these signs unless cleared by air traffic control. At uncontrolled airports, vehicles and aircraft may proceed beyond these signs only after appropriate precautions are taken. Arrows should not be used on these signs except as discussed in Paragraph 5.a. Mandatory signs are installed on the left side of the taxiway or runway and include the following:

**a. Holding Position Sign for Taxiway/Runway Intersections.** The inscription on a holding position sign at a taxiway/runway intersection is the runway number(s), such as "15-33," as shown in Figure 2a. The runway numbers are separated by a dash, and their arrangement indicates the direction to the corresponding runway threshold. For example, "15-33" indicates that the threshold for runway "15" is to the left and the threshold for runway "33" is to the right. The sign at each takeoff end contains the inscription only for the takeoff runway, while all other signs contain both runway designation numbers. However, both runway designation numbers may be used on signs at runway ends where there is an operational need, such as where a taxiway crosses the runway at the runway end. Application examples for holding position signs are shown in Figure 3. Arrows are used on these signs only for identifying intersecting runways at a taxiway/runway/runway intersection (see Figure 4). Note that in Figure 4b, the holding position signs have both runway numbers to avoid confusion as to the runway direction. In some geometrical configurations of runways and taxiways, it is necessary to install hold position signs on both sides of the taxiway. These configurations include—

- (1) Taxiways that are 150 feet or greater in width (see Figure 3).
- (2) Taxiways where the painted hold position markings extend across an adjacent holding bay, etc., as shown in Figure 5a.
- (3) Taxiways where the painted hold position markings do not extend straight across the taxiway, as shown in Figure 5c.
- (4) Taxiways where the painted hold position markings are located a short distance from an intersection with another taxiway. In this situation, the pilot turning onto the taxiway would have difficulty seeing the hold position sign on the left. This commonly occurs when the separation distance between the runway and the parallel taxiway is less than standard and the hold position markings are located near the edge of the parallel taxiway (see Figure 5b). Because of cockpit visibility limitations, pilots of some aircraft making a left turn from the parallel taxiway onto the connecting taxiway would have difficulty seeing a sign on the left. In this situation, it may be necessary to install the sign on an angle in accordance with Paragraph 16.

**b. Holding Position Sign for Runway/Runway Intersections.** Signs used to identify runway/runway intersections are identical to signs used for taxiway/runway intersections. For runways 150 feet or less in width, only one sign is needed. For runways more than 150 feet in width, or for runways of any width that are used for "land and hold short" operations or normally used for taxiing, signs on both sides of the runway are needed (see Figure 6). Signs should be located at a distance from the intersecting runway sufficient to meet the clearance requirements of the intersecting runway, as specified in Table 1.

**c. Holding Position Sign for ILS Critical Areas/Precision Obstacle Free Zone (POFZ) Boundary.** The inscription on a sign to indicate either the holding position for the ILS Critical Area or the POFZ boundary is the same — the abbreviation ILS (see Figure 2b). If a microwave landing system (MLS) is available and has a more demanding critical area boundary than the ILS or POFZ, the inscription on the sign can be the abbreviation MLS.

1. Where the distance between the runway holding position marking and the holding position marking for an ILS critical area is 50 feet or less, one holding position sign and marking may be installed, provided it will not affect capacity. In such cases, the airport operator can use the runway holding position sign and marking to delineate both the boundary of the runway safety area and the ILS critical area. In this instance, the runway holding position sign and marking should be located at the more demanding boundary of these two areas, i.e., at the boundary that is the furthest from the runway edge (see Figure 7).

2. If a taxiway penetrates the POFZ, only one holding position sign and marking should be installed to delineate the ILS critical area and the POFZ. This holding position sign and marking should be located at the more

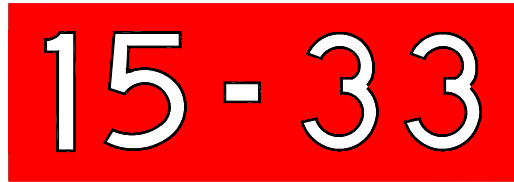
demanding boundary of these two areas (see Figure 3). In this instance, the ILS critical area/POFZ boundary holding position sign and marking cannot be replaced with, or used in lieu of, a runway holding position sign or marking.

**3.** The local FAA office will designate the ILS (or MLS) critical area and POFZ boundaries for the airport operator. The holding position sign for the ILS critical area or POFZ boundary should be located on both sides of the taxiway when the holding position marking for the ILS critical area or POFZ boundary is located in the geometrical configurations described in Paragraph 5.a. (1) through 5.a. (4).

**d. Holding Position Sign for Runway Approach Areas.** The inscription on a sign for a runway approach area is the associated runway designation followed by a dash and the abbreviation APCH for approach (see Figure 2c for an example). The sign is installed on taxiways located in approach areas where an aircraft on a taxiway would either cross through the runway safety area or penetrate the airspace required for the approach or departure runway. This sign should not be installed on runways. This sign should not be installed on taxiways that intersect the runway specified on the sign.

**e. Holding Position Sign for CAT II/III Operations.** The inscription on a holding position sign for CAT II/III operations is the associated runway designation followed by a dash and the abbreviation CAT II/III for Category II/III operations (see Figure 2d). The sign is installed on a taxiway that is parallel to a runway used during CAT II/III operations to indicate where aircraft are to hold during CAT II/III operations to ensure proper aircraft separation. The local FAA office will determine the holding position location for CAT II/III operations for the airport operator. The holding position sign for CAT II/III operations should be located on both sides of the taxiway when the holding position marking for CAT II/III operations is located in the geometrical configurations described in Paragraph 5.a. (1) through 5.a. (4).

**f. No Entry Sign.** This sign indicates that entry into a particular area is prohibited to aircraft. The sign inscription is shown in Figure 2e.



a. Holding Position Sign



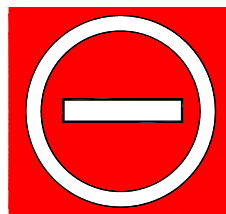
b. Holding Position Sign for **ILS** Critical Areas/**Precision Obstacle Free Zone (POFZ) Boundary**



c. Holding Position Sign for Runway Approach Areas



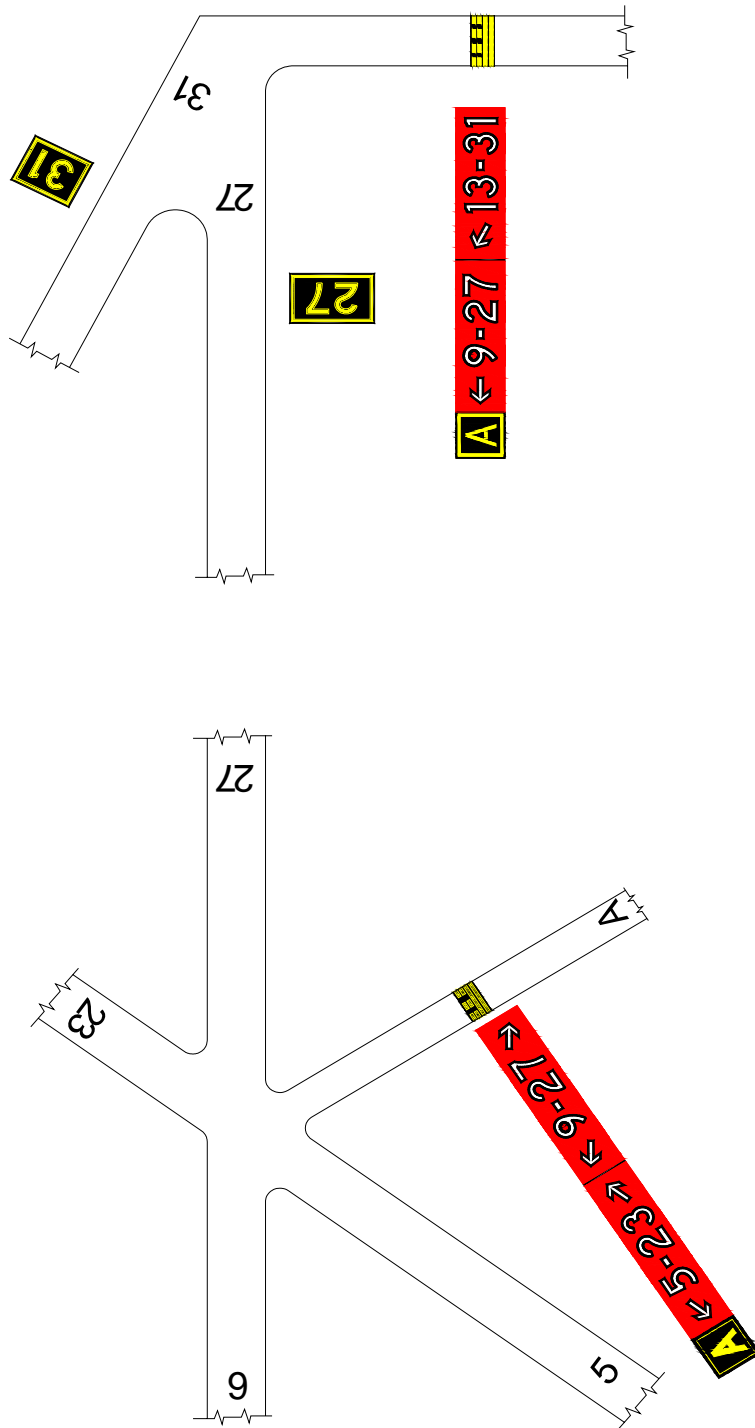
d. Holding Position Sign for CAT II/III Operations



e. No Entry Sign

Figure 2. Examples of Mandatory Instruction Signs





b. TAXIWAY ENTRANCE AT INTERSECTION OF  
TWO RUNWAY ENDS

a. TAXIWAY ENTRANCE AT INTERSECTION OF  
TWO RUNWAYS

Figure 4. Runway Location Signs and Arrows on Holding Position Signs

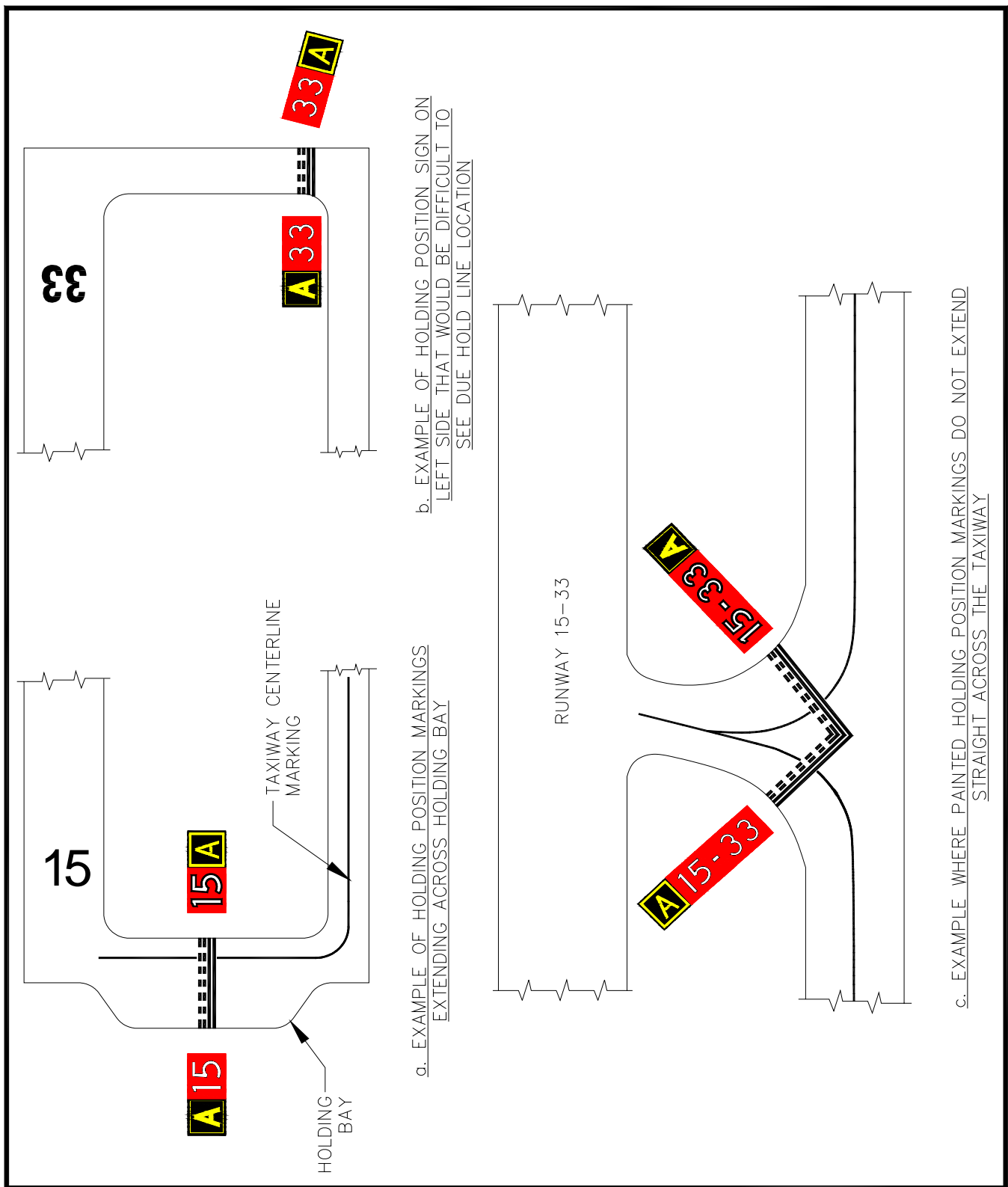


Figure 5. Examples of Holding Position Sign **Locations** for Non-typical Conditions

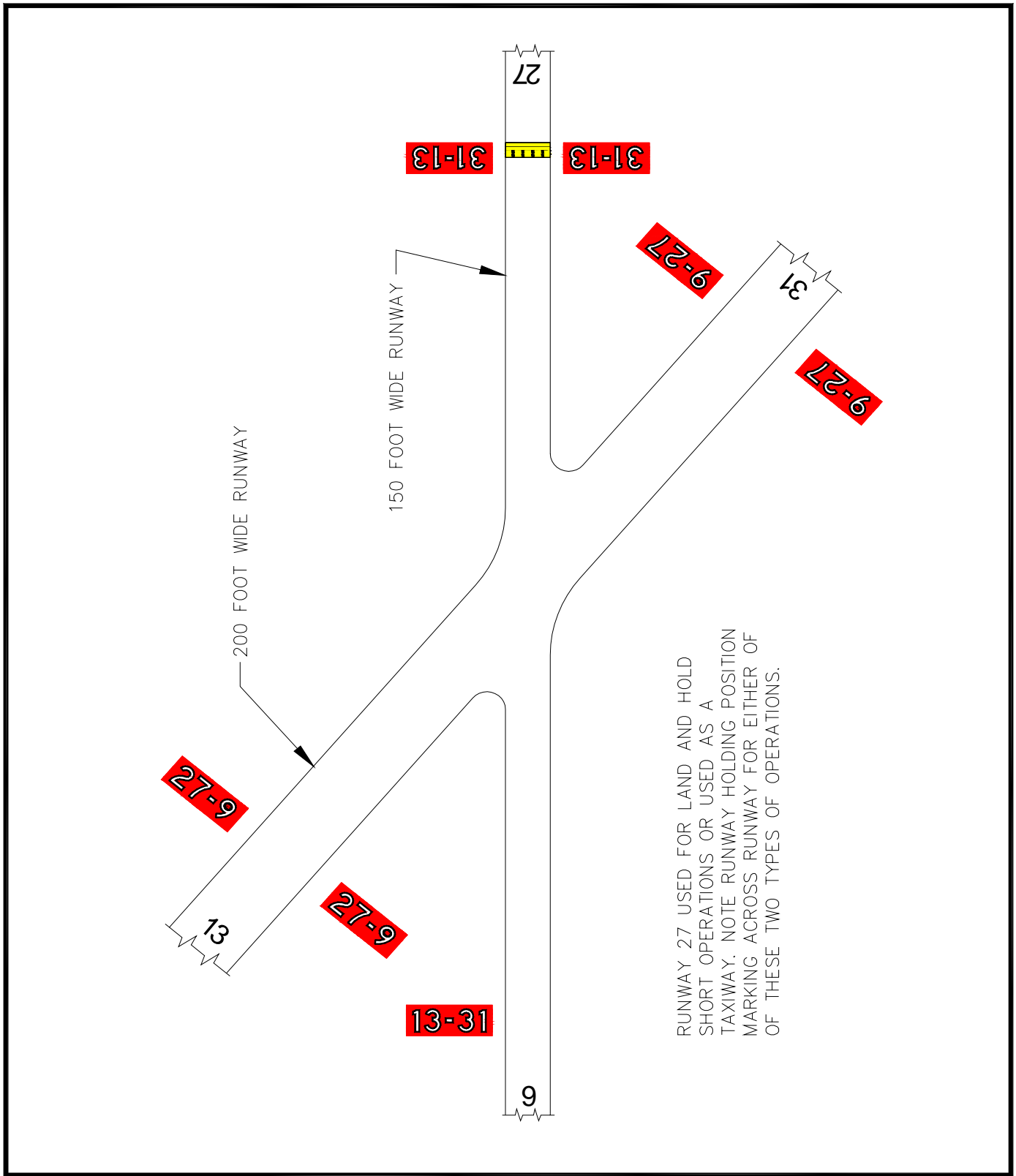


Figure 6. **Examples of** Holding Position Signs at Runway/**Runway** Intersections



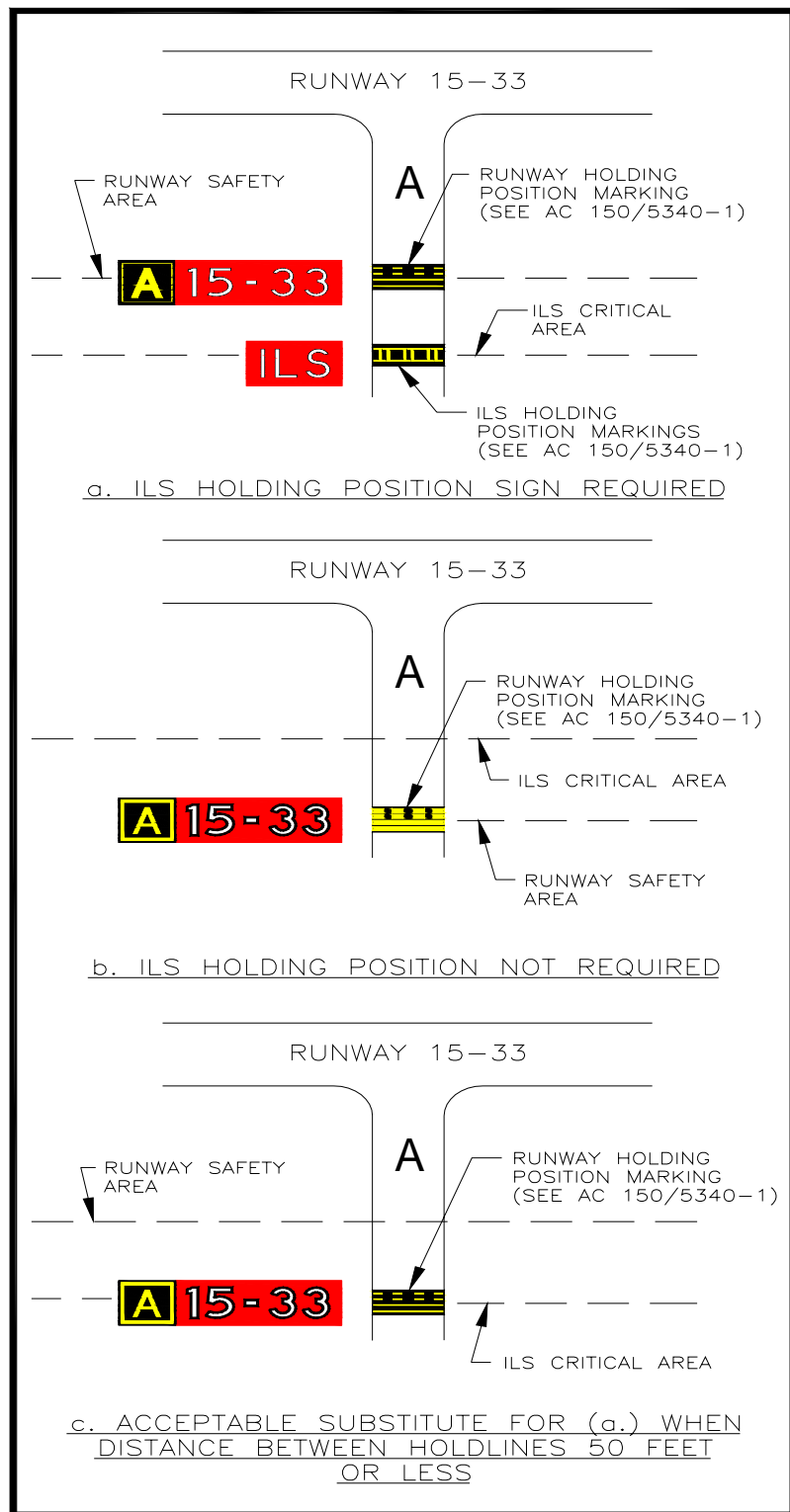


Figure 7. Sign Applications for ILS Critical Areas

**6. LOCATION SIGNS.** These signs identify the taxiway or runway upon which the aircraft is located. The signs are also used to identify the boundary of the runway safety area/OFZ or ILS critical area for a pilot exiting the runway. Location signs include the following:

a. **Taxiway Location Sign.** This sign identifies the taxiway on which an aircraft is located. A typical sign is shown in Figure 8a. This sign has yellow inscriptions on a black background with a yellow border and does not contain arrows.

b. **Runway Location Sign.** This sign is installed on runways where the proximity of two runways could create confusion, as shown in Figure 4b. **This sign also can be installed on runways at runway/taxiway intersections used for intersection takeoffs.** A typical sign is shown in Figure 8b. This sign should be located to identify the runways clearly for pilots and contain the runway designation only for the one runway end. The sign has yellow inscriptions on a black background with a yellow border and does not contain arrows.

c. **Runway Safety Area/OFZ and Runway Approach Boundary Sign.** This sign identifies the boundary of the runway safety area/OFZ or the runway approach area for pilots who are exiting these areas. It has a black inscription that depicts the holding position marking on a yellow background, as shown in Figure 8c. The sign is **typically** used only at controlled airports **at the request of the air traffic control tower and is located** on taxiways where the controller commonly asks the pilot to report "clear of the runway." The pilot can use the sign as a guide in deciding when to report back to the controller. Consequently, the sign would not normally be installed at every runway exit or on taxiways having color-coded centerline lights. However, this sign may be useful in areas where the centerline lights could be obscured by snow or ice.

d. **ILS Critical Area/POFZ Boundary and CAT II/III Operations Sign.** This sign identifies either the boundary of the ILS critical area **or the POFZ or the holding position for CAT II/III operations.** The sign has a black inscription that depicts the ILS holding position marking on a yellow background, as shown in Figure 8d. This sign is used at controlled airports on taxiways where the controller commonly asks pilots to report "clear of the ILS critical area" when exiting these areas. The pilot can use the sign as a guide in deciding when to report back to the controller. This sign would not normally be installed on taxiways having color-coded centerline lights but may be desirable in areas where the centerline lights could be obscured by snow or ice. This sign is installed only on the backside of an ILS, **POFZ, or CAT II/III Operations** holding position sign.

**7. DIRECTION SIGNS.** These signs indicate directions of other taxiways leading out of an intersection. The signs have black inscriptions on a yellow background and always contain arrows. The arrows should be oriented to approximate the direction of turn. Direction signs should not be collocated with holding position signs or installed between the holding position marking and the runway. Signs used to indicate the direction of taxiways on the opposite side of a runway should be located on the opposite side of the runway.

a. **Taxiway Direction Sign.** A typical taxiway direction sign is shown in Figure 10a. Application examples are shown in Figures 11 and 12 and Appendix 1.

b. **Runway Exit Sign.** A typical runway exit sign is shown in Figure 10a, and application examples are shown in Figures A-1, A-2, and A-3 of Appendix 1. Signs for runway exits are located prior to the runway/taxiway intersection on the side and in the direction of the runway from which the aircraft is expected to exit. A runway exit sign should never have more than one taxiway designation shown on the sign.

(1) If a taxiway crosses a runway and an aircraft can be expected to exit on either side, then exit signs should be located on both sides of the runway.

(2) For taxiways that are intended only to be used as exits from the runway in one direction, such as taxiways located near the end of the runway or intersecting the runway at an acute angle, the signs should be installed only for the runway direction in which they are intended to be used (see Appendix 1).

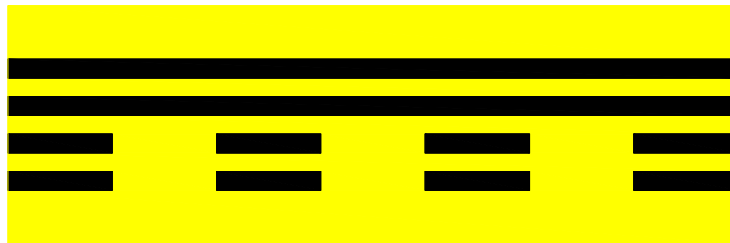
(3) When two acute-angle taxiways (i.e., high speed exits), intended to be used in opposite directions, intersect the runway at a common point, the exit signs should be located prior to the common point intersection rather than in the area between the two exits (see Appendix 1, Figure A-1, Taxiways D and E).



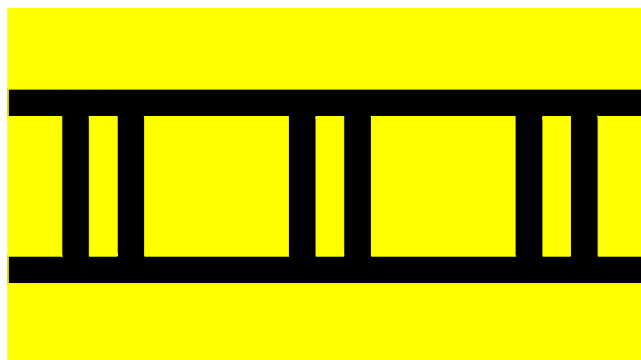
a. Taxiway Location Sign



b. Runway Location Sign



c. Boundary Sign for Runway Safety Area/OFZ and Runway Approach Area



d. ILS Critical Area/POFZ Boundary and CAT II/III Operations

Figure 8. Examples of Location Signs

**8. TAXIWAY ENDING MARKER.** The sign system does not provide a sign to indicate that a taxiway does not continue beyond an intersection. A frangible, retroreflective barrier, as shown in Figure 9 and Figure 10e., should be installed on the far side of the intersection if the normal visual cues such as marking and lighting are inadequate.

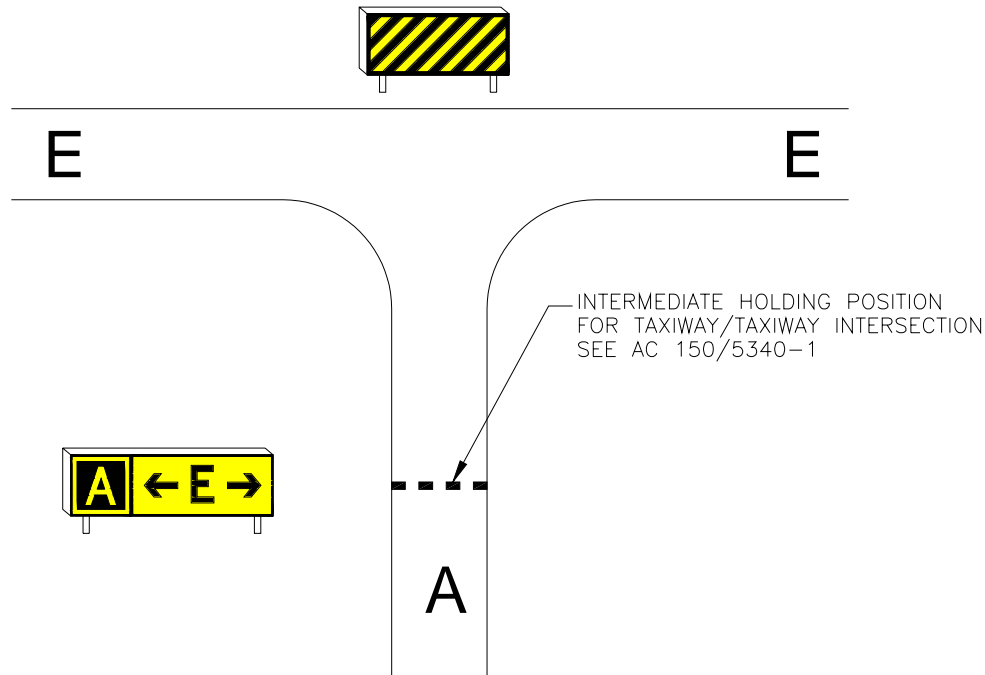


Figure 9. Taxiway Ending Marker

**9. DESTINATION SIGNS.** Destination signs have black inscriptions on a yellow background and always contain an arrow. These signs indicate the general direction to a remote location. They are not normally needed on an airport where taxiway direction signs are used. At many of the larger airports, taxiway routing is a very dynamic process, dependent on many variables, including airfield construction and primary runway utilization. In such cases, destination signs may provide contradictory information or routing possibilities in relation to air traffic control communications. The use of destination signs at such airports is justified in cases of remote locations or where it is determined that such a level of confusion can exist that taxiway location signs and direction signs alone would not adequately guide a pilot to the desired destination. Destination signs may be more beneficial at uncontrolled airports.

**a. Outbound Destination Sign.** Outbound destination signs are used to identify directions to the takeoff runways. These routes usually begin at the entrance to a taxiway from an apron area. The inscription is the runway number plus an arrow indicating the direction (see Figure 10b). More than one runway number, separated by a dot, may be shown where the taxiing route is common to both runways as shown in Figure 10c.

**b. Inbound Destination Sign.** Major destination areas are usually shown on inbound destination signs. For example, at many airports, signs indicating the way to the apron may be adequate; whereas at other airports, it may be necessary to make a distinction between passenger aprons, cargo aprons, and military aprons or between aprons in different locations on the airport, such as the north apron, east apron, etc. At appropriate points closer to the major destination areas, more detailed destination signs should be provided to indicate specific areas that are designated for parking service, passenger handling, military aircraft, etc. (see Figure 10d for a typical sign). The inscription on destination signs should contain a minimum of three letters, selected so no confusion will exist with other taxiway guidance signs. Common abbreviations used for inbound destinations are—

**APRON**—general parking, servicing, and loading areas

**FUEL**—areas where aircraft are fueled or serviced

**TERM**—gate positions at which aircraft are loaded or unloaded

**CIVIL**—areas set aside for civil aircraft

**MIL**—areas set aside for military aircraft

**PAX**—areas set aside for passenger handling

**CARGO**—areas set aside for cargo handling

**INTL**—areas set aside for handling international flights

**FBO**—fixed-base operator

**10. ROADWAY SIGNS.** Vehicle roadways that intersect runways or taxiways should have a standard retroreflective highway stop sign prior to the intersection. At intersections with taxiways, it is permissible to use a standard retroreflective highway yield sign in lieu of a stop sign. These signs should be located at the edge of the applicable runway safety area/OFZ or taxiway safety area on frangible mounts and restricted to a height that does not interfere with aircraft using the runways or taxiways. Aircraft clearance requirements and jet blast may preclude the use of these signs on roadways that are located on the apron or other parts of the air operations area.

**11. INFORMATION SIGNS.** Signs installed on the airside of an airport —other than taxiway guidance signs, as described in this chapter or runway distance remaining signs, as described in Chapter 2 —should have black inscriptions on a yellow background, provide adequate clearance to aircraft, and conform to the general installation guidelines in Paragraph 16. An example of such a sign is one that provides noise abatement procedures or other such specialized information. These signs need not be lighted, and the size of the inscription is at the discretion of the airport operator. **They should not be located in the runway or taxiway safety areas.**

**12. GENERAL SIGNING CONVENTIONS.** The following general signing conventions should be followed:

**a.** Unless otherwise noted herein, signs should always be placed on the left side of the taxiway as seen by the pilot of the approaching aircraft. If signs are installed on both sides of the taxiway at the same location, the sign faces should be identical (an exception is for holding position signs, as explained in Paragraph 12.d. Signs should not be installed between the taxiway/runway holding position sign and the runway.

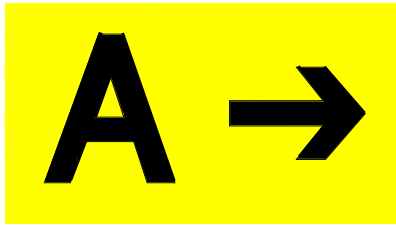
**b.** Signs may be located on the right side of the taxiway when necessary to meet clearance requirements or where it is impractical to install them on the left side because of terrain or conflicts with other objects.

**c.** Some signs may be installed on the backside of other signs even though it results in the sign being on the right side of the taxiway. Signs that may be installed in this manner include—

**(1)** Runway safety area/OFZ and runway approach area boundary signs, which may be installed on the back of taxiway/runway intersections and runway approach area holding position signs.

**(2)** ILS critical area boundary signs, which may be installed on the back of ILS critical area holding position signs.

**(3)** When installed on the far side of an intersection, taxiway location signs may be installed on the back of direction signs. *Note:* Location signs installed in this manner do not replace the need for location signs installed on the left of the runway prior to the intersection.



a. Direction/Runway Exit Sign



b. Typical Outboard Destination Sign



c. Outboard Destination Sign to Different Runways



d. Inboard Destination Sign



e. Taxiway Ending Marker

Figure 10. Examples of Direction Signs, Destination Signs and Taxiway Ending Marker

(4) Taxiway location signs, which may be installed on the back of holding position signs.

(5) Destination signs, which may be installed on the back of direction signs on the far side of intersections when the destination referred to is straight ahead (see Appendix 1, Figure A-1).

d. Taxiway location signs installed in conjunction with holding position signs for taxiway/runway intersections should always be installed outboard of the holding position sign (see Figure 3, Taxiway B).

e. Location signs are normally included as part of a direction sign array, which is located prior to the taxiway intersection. Except for intersections of only two taxiways (see Paragraph 12.h.), the location sign is placed in the array so the designations for all turns to the left are located to the left of the location sign; the designations for all turns to the right or straight ahead, when required (see Paragraph 12.g.), are located to the right of the location sign (see Figure 11).

f. When more than one taxiway direction sign is installed at the same location, the designations of the intersecting taxiways and their respective arrows are arranged left to right in a clockwise manner, starting from the taxiway or runway on which the aircraft is located (see Figure 12).

g. All direction signs have arrows. Arrows on signs should be oriented to the approximate direction of the turn. Except as noted in Paragraph 12.h., each designation appearing in an array of direction signs should be accompanied by only one arrow. A direction sign with an arrow indicating that a taxiway continues straight ahead (25 degrees or less change in alignment at the intersection) is not normally needed (see Figure 11a). Where the intersection alignment changes more than 25 degrees, a sign with an arrow approximating the direction of the taxiway should be used (see Figure 11b). If the taxiway continues straight ahead (25 degrees or less change in alignment) and the designation of the taxiway changes at the intersection, then a direction sign with an arrow should be used (see Figures 11c and 11d).

h. When a taxiway intersection is comprised of only two taxiways, it is permissible to place the location sign to the left of the sign array. In this case, two arrows will accompany the designation for the intersecting taxiway on the direction sign. For this type of installation, the taxiway cannot change designation or alignment (more than 25 degrees) on the other side of the intersection (see Figure 11a).

i. In some cases, location signs may not be needed in conjunction with direction signs (see Figure 12). In analyzing the need for a location sign, all information concerning the intersection must be considered. This would include but not be limited to—

- (1) Complexity of the intersection layout.
- (2) Distance from the last location sign.
- (3) Complexity of prior intersections.
- (4) Traffic flow patterns through the intersection.
- (5) Visibility conditions under which the intersection is used.

j. Destination signs should be installed in advance of intersections but should not be collocated with other signs. They may also be installed on the far side of an intersection when the taxiway does not continue and direction signs are provided prior to the intersection.

k. Information signs should not be collocated with mandatory, location, direction, or destination signs.

l. Each designation and its associated arrow included in an array of direction signs or destination signs should be delineated from the other designations in the array by a black vertical border. When it is appropriate, a location sign may be used to provide this delineation (see Figure 12).

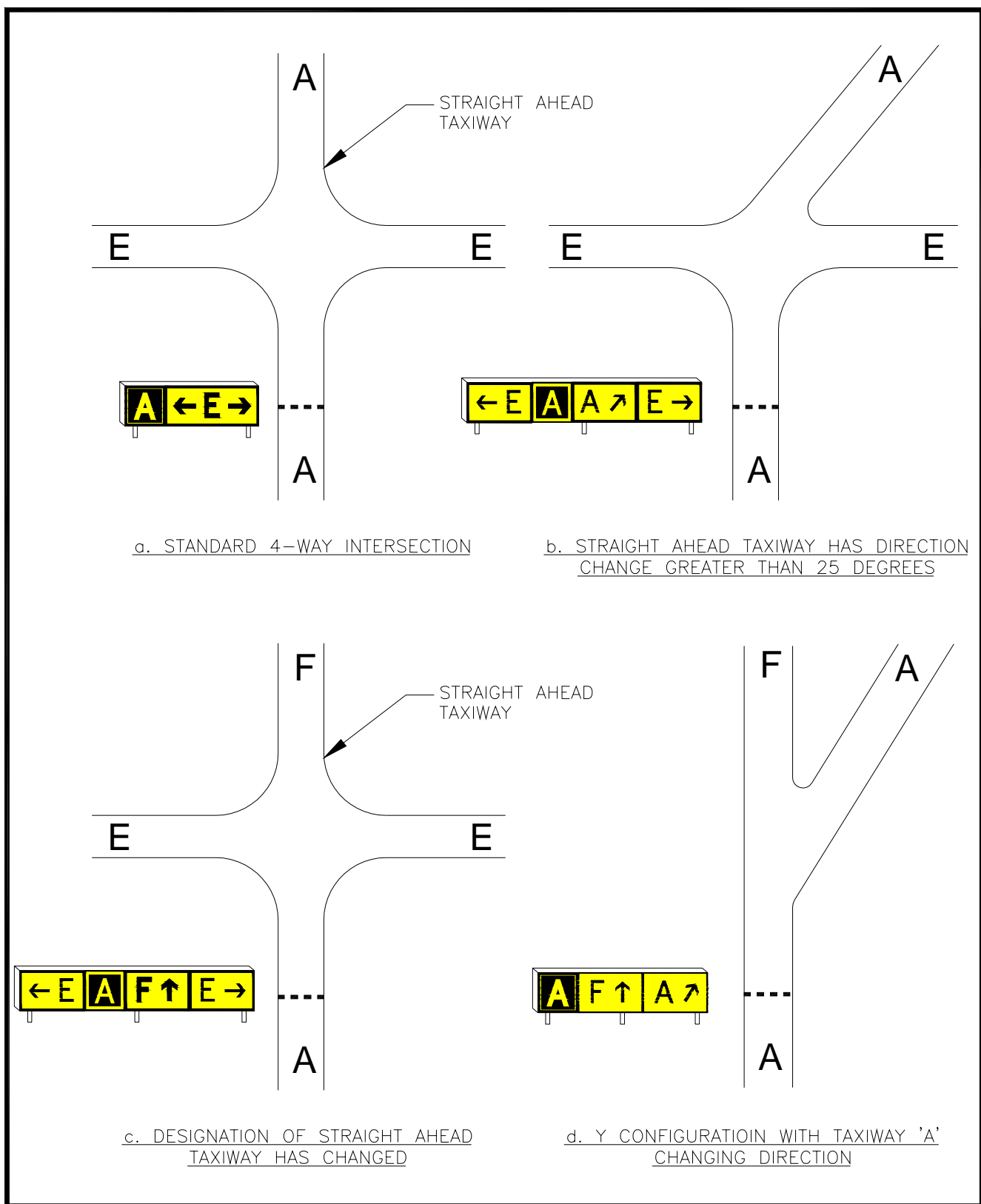


Figure 11. **Examples of Signs at a Taxiway/Taxiway Intersection**



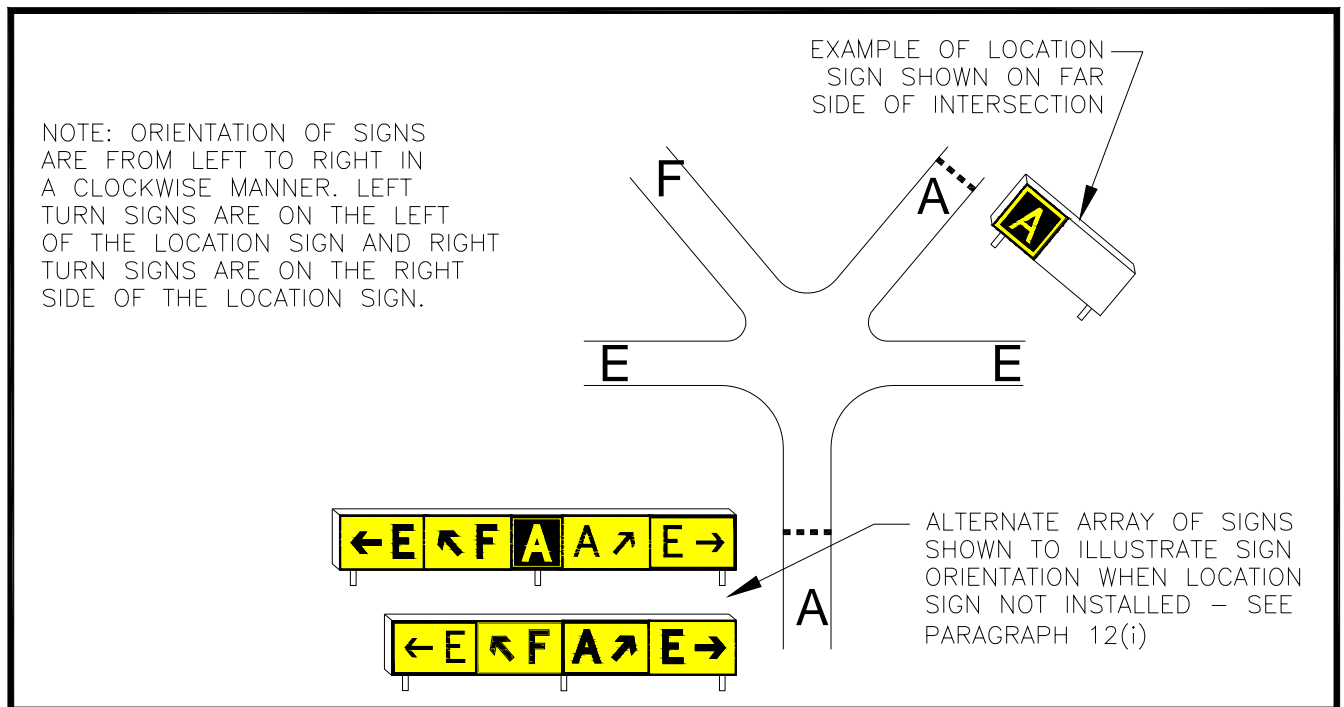


Figure 12. **Examples of Signs at a Complex Taxiway/Taxiway Intersection**

**13. SIGN SIZE AND LOCATION.** Signs should be in accordance with AC 150/5345-44, *Specifications for Taxiway and Runway Signs*. Three sizes (heights) of signs are available (see Table 2). The choice of a particular size must take into account several factors, such as effectiveness, aircraft clearance, jet blast, and snow removal operations. Normally, the larger the sign and the closer it is located to the runway or taxiway edge, the more effective it is. However, aircraft clearance requirements and jet blast effects require smaller signs when located near the pavement edges, while effectiveness requires larger signs when located at further distances. Also, the effects of snow removal operations on the signs should be considered in the choice of sign size and location. The sign used must provide 12 inches (30 cm) of clearance between the top of the sign and any part of the most critical aircraft using, or expected to use, the airport when the aircraft's wheels are at the defined pavement edge. The distances shown in Table 1 should be used in determining runway holding positions. All signs in an array, e.g., a runway/taxiway holding position sign array consisting of a runway holding position sign and a taxiway location sign, should be the same size and same height above the ground. For determining sign locations with respect to intersecting taxiways, the clearance requirements to other moving aircraft, as given in Table 3, should be used. For signs installed at holding positions, the signs should be in line with the holding position markings; however, a tolerance of  $\pm 10$  feet is allowed. Where there is no operational need for taxiway holding position markings (at taxiway/taxiway intersections), the signs may be installed in the area from the taxiway point of tangency to the location where holding position markings will be installed (Table 3). However, locating the signs where the holding position marking will be installed will obviate the need to relocate the signs if the operational need for a taxiway holding position develops in the future.

**14. SIGN OPERATION.** Holding position signs for runways, ILS critical areas, approach areas, and their associated taxiway location signs should be illuminated when the associated runway lights are illuminated. Other taxiway guidance signs should be illuminated when the associated taxiway lights are illuminated. Signs powered from lighting circuits that are electrically monitored may have an adverse effect on the monitoring of the lighting circuit.

**15. PAVEMENT MARKING SIGNS.** Where signs cannot be installed and/or there is a need for additional guidance, directional guidance or location information may be painted on the pavement.

**16. INSTALLATION.** The signs should be mounted on a concrete slab, concrete pedestals, or angle iron stakes so the top of the sign is level. The concrete edges or stakes should not protrude above grade. Signs are oriented so that the face is perpendicular to the centerline of the taxiway or runway. For special situations where visibility would be improved, single-sided signs may be canted. Power to the signs should be provided through breakaway cable connectors installed within the frangible coupling portion of the sign's mounting legs. Auxiliary equipment, such as isolation transformers or series circuit power adapter units, should be installed in a light base that can be embedded in the ground.

**17–19. RESERVED.**

**Table 1. Location Distances for Holding Position Markings**

Aircraft approach category and (airplane design group)	Perpendicular distance from runway centerline to intersecting runway/taxiway centerline in feet (meters)*	
	Visual and nonprecision instrument	Precision instrument
A & B (I and II) small airplanes only	125 (38)	175 (53)
A & B (I, II, and III)	200 (60)	250 (75)
A & B (IV)	250 (75)	250 (75)
C & D (I through IV)	250 (75)	250 (75)
C&D(V)	250 (75)	280 (85)

\* Increases for elevation above sea level are—

1. Aircraft approach categories A and B.
  - a. Airplane design groups I and II. No increase to this distance is required.
  - b. Airplane design group III. This distance is increased 1 foot for each 100 feet above 5,100 feet above sea level.
  - c. Airplane design group IV.
    - (1) Visual and nonprecision instrument. No increase to this distance is required.
    - (2) Precision instrument. This distance is increased 1 foot for each 100 feet above sea level.
2. Aircraft approach category C.
  - a. Airplane design groups I, II, and III. No increase to this distance is required.
  - b. Airplane design group IV.
    - (1) Visual and nonprecision instrument. No increase to this distance is required.
    - (2) Precision instrument. This distance is increased 1 foot for each 100 feet above sea level.
  - c. Airplane design group V. This distance is increased 1 foot for each 100 feet above sea level.
3. Aircraft approach category D. This distance is increased 1 foot for each 100 feet above sea level.

**Table 2. Location Distances for Taxiway Guidance Signs**

Sign size	Sign heights [inches (cm)]			Perpendicular distance from defined taxiway/runway edge to near side of sign [feet (m)]
	Legend	Face	Installed (max.) *	
1	12 (30)	18 (46)	30 (76)	10-20 (3-6)
2	15 (38)	24 (61)	36 (91)	20-35 (6-10.5)
3	18 (46)	30 (76)	42 (107)	35-60 (10.5-18)

\* The height referred to in this column is the distance from top of the sign to grade measured at the side of the sign that is nearest to the applicable runway, taxiway, or apron. In accordance with Paragraph 13, this height should be reduced, if necessary, to provide the required 12-inch clearance between the top of the sign and the critical aircraft.

**Table 3. Perpendicular Distances for Taxiway Intersection Markings from Centerline of Crossing Taxiway**

Airplane design group <sup>1</sup>					
I	II	III	IV	V	VI
44.5 feet (13.5 m)	65.5 feet (20 m)	93 feet (28.5 m)	129.5 feet (39.5 m)	160 feet (48.5 m)	193 feet (59 m)

<sup>1</sup> See AC 150/5300-13, *Airport Design*

## CHAPTER 2. RUNWAY DISTANCE REMAINING SIGNS

---

**20. GENERAL.** Runway distance remaining signs are used to provide distance remaining information to pilots during takeoff and landing operations.

**21. DESCRIPTION.** The signs are located along the side(s) of the runway, and the inscription consists of a white numeral on a black background, as shown in Figure 10, to indicate the runway distance remaining in increments of 1,000 feet.

**22. CONFIGURATION.** The signs may be configured by either of three different methods, as illustrated in Figure 11 and as described below. Displaced threshold areas that are used for takeoffs and/or rollout are treated as part of the runway for purposes of locating the signs. The method chosen should be based on cost considerations and adaptability to the specific airport configuration. When using the preferred method or alternate method #2 for runway lengths that are not an exact multiple of 1,000 feet, one-half of the excess distance must be added to the distance of each sign on each runway end. For example, for a runway length of 6,500 feet, the excess distance is 500 feet and the location of the last sign on each runway end is 1,000 feet plus  $1/2(500)$  or 1,250 feet. If a sign cannot be installed at its standard location, a tolerance of + 50 feet is allowed for that sign. The sign should be omitted if it cannot be installed within this tolerance.

**a. Preferred Method.** The most economical installation consists of double-faced signs located on only one side of the runway. Where this method is used, the signs should be placed on the left side of the runway as viewed from the most often used direction. However, the signs may all be placed on the right side of the runway where necessary because of runway/taxiway separation distances or conflicts between intersecting runways or taxiways.

**b. Alternate Method #1.** This method uses single-faced signs installed on both sides of the runway. The advantage of this method is that the runway distance remaining can be more accurately reflected in cases where the runway length is not an exact multiple of 1,000 feet.

**c. Alternate Method #2.** This method uses double-faced signs installed on both sides of the runway. The advantage of this method is that if a sign on one side of the runway is removed because of clearance conflict, the information will still be displayed on the other side of the runway.

**23. SIGN OPERATION.** The sign system should be designed so they are illuminated at all times when the runway edge lights are illuminated.

**24. SIZE AND LOCATION.** Signs should be in accordance with AC 150/5345-44, *Specification for Taxiway and Runway Signs* (current edition), type L-858B, size 4 (48-inch sign face with a 40-inch legend) or size 5 (30-inch sign face with a 25-inch legend). All signs on one runway should be the same size. The choice of a size should take into account several factors such as effectiveness, aircraft clearance, jet blast, and snow removal operations. Normally, the larger the sign and the closer it is located to the runway or taxiway edge, the more effective it is. However, aircraft clearance requirements and jet blast effects require smaller signs when located near the pavement edges, which effectiveness requires larger signs when located at further distances. Also, the effects of snow removal operations on the signs should be considered in the choice of sign size and location. The sign should provide 12 inches of clearance between the top of the sign and any part of the most critical aircraft using, or expected to use, the airport when the aircraft wheels are at the pavement edge.

**25. INSTALLATION.** The signs should be located with respect to the runway in accordance with Table 4 and installed in accordance with Paragraph 16.



Figure 13. Runway Distance Remaining Sign

**Table 4. Location Distances for Runway Distance Remaining Signs**

Sign size	Sign heights [in. (cm)]			Distance from defined pavement edge [ft (m)]
	Legend	Face	Installed (max.) *	
4	40(100)	48(120)	60 (152)	50-75 (15-22.5)
3	25(64)	30(76)	42 (107)	20-35 (6-10.5)

\* The height referred to in this column is the distance from top of the sign to grade measured at the side of the sign that is nearest to the applicable runway. In accordance with Paragraph 13, this height should be reduced, if necessary, to provide the required 12-inch clearance between the top of the sign and the critical aircraft.

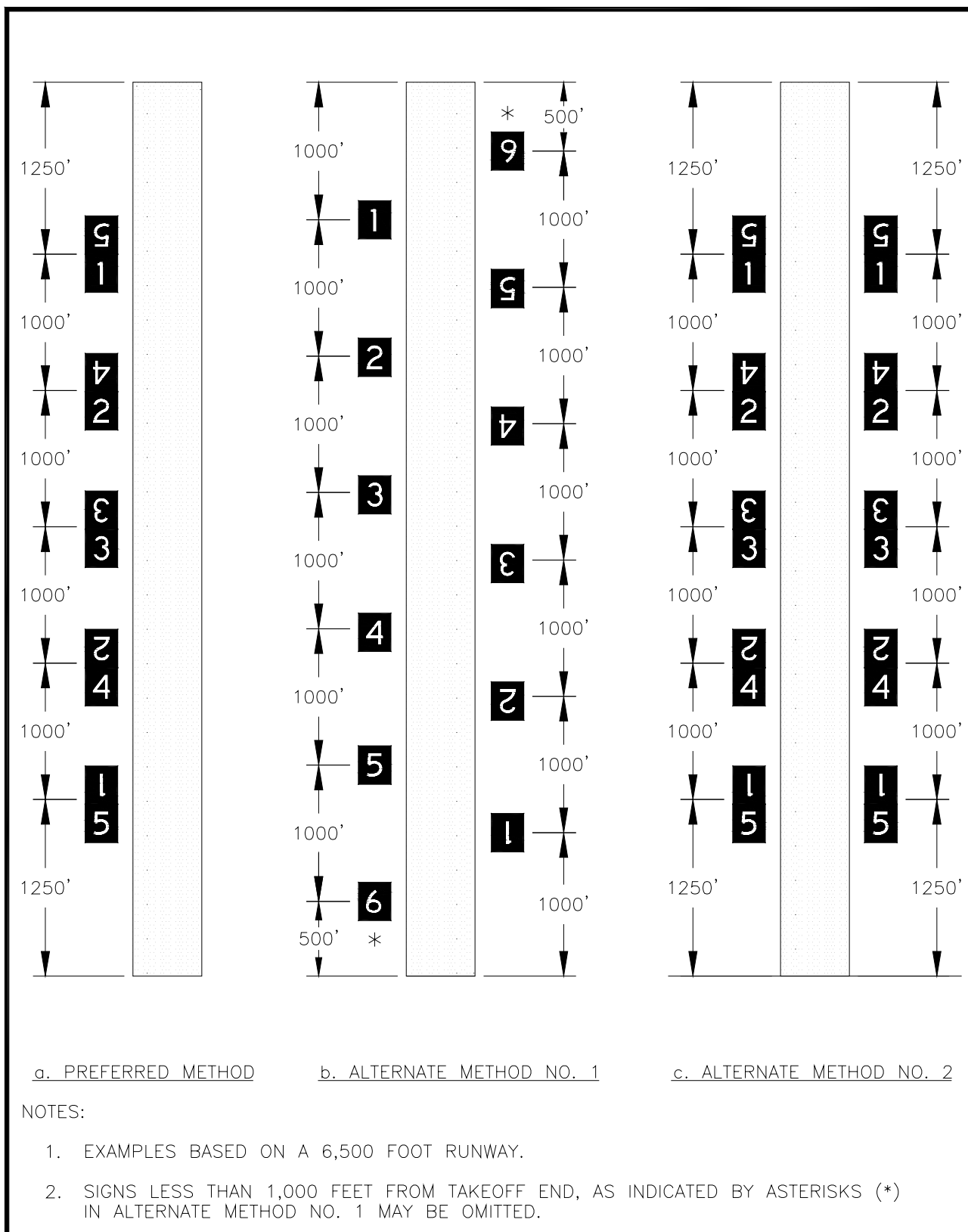


Figure 14. Runway Distance Remaining Sign Configurations

## APPENDIX 1. AIRPORT SIGNING EXAMPLES

---

**1. GENERAL.** This appendix depicts examples of signs that might be installed on various airport configurations. To understand why some signs are included in this system while others are omitted, it is important to understand the functional layout of each of these airports. For this reason, this section provides a brief description of the airport with each example as well as a brief rationale on why certain signs were installed or omitted. The intent of these examples is to illustrate that the types and locations of the signs included in an airfield sign system reflect a determination made by the airport operator in consultation with the users and the FAA.

**2. EXAMPLE 1—COMPLEX AIRPORT.** Figure A-1 depicts a taxiway guidance sign system for a portion of a complex airport. The airport serves both domestic and international air carriers, as well as general aviation, and has an air traffic control tower. The apron area shown at the south of this figure is for air carriers, with the international terminal being located on the eastern end of the apron. The two high-speed exits (Taxiways D and E) have centerline lights. All the other taxiways have edge lights. Taxiway G leads to fixed-base operator facilities. Taxiway H leads to corporate hangars and an air carrier maintenance hangar. The intersection of Taxiways C, G, and H and Runway 9-27 represents a major crossing point for aircraft traveling between the north and south areas of the airport. General aviation aircraft also commonly use this intersection for intersection departures. Taxiway holding position markings are shown on the taxiways where a pilot would normally be requested by air traffic control to hold because of traffic on an intersecting taxiway. With this background, the signs included in this system are as follows:

- Holding position signs along with taxiway location signs are installed on all taxiways that intersect the runway.
- Taxiway B passes through the ILS critical area so an ILS holding position sign is also necessary on this taxiway since the critical area is not within the area protected by the standard runway holding position marking.
- On Runway 9, exit signs are shown for Taxiways C, E, G, and H since aircraft using Runway 9 would normally use these taxiways as exits. On Runway 27, exit signs are shown for Taxiways B, C, D, G, and H, since aircraft using Runway 27 would normally use these taxiways as exits. The exit signs for Taxiways D and E are installed in accordance with the guidance provided in Paragraph 7.b. (2) and 7.b. (3). Also, it should be noted that for the runway exits for Taxiways G and H, the runway exit sign for Taxiway G is placed first in the sign array in accordance with Paragraph 12.f. (this paragraph establishes the clockwise convention for direction signs within an array, beginning from the taxiway or runway where the aircraft is located).
- Taxiways D and E are both high-speed exits that are equipped with centerline lights. Since these lights are color coded, runway safety area/OFZ boundary signs are not needed on these taxiways even though air traffic control commonly asks pilots to report when they are clear of the runway. Also, since an aircraft would not normally use these taxiways as an entrance to the runway, it is not necessary to install direction signs for them on Taxiway B.
- Pilots of air carrier aircraft that use Taxiway C as an exit are commonly asked by air traffic control to report when they are clear of the runway. To assist these pilots in judging when their aircraft is clear of the runway, a runway safety area/OFZ boundary sign has been installed on the back of the hold position sign on Taxiway C.
- Pilots exiting the runway on Taxiway B during instrument meteorological conditions are asked to report when they are clear of the ILS critical area. An ILS critical area boundary sign is included on the back of the ILS holding position sign to identify the perimeter of the critical area since this taxiway is not equipped with color coded centerline lights.
- As illustrated at the intersection of Taxiways B, E, and F, taxiway direction signs are placed only at the intersections for the taxiways on which the pilot would normally turn.
- On Taxiway B, direction signs are provided only for Taxiway F since an aircraft would not be expected to turn onto Taxiway E.

- On Taxiway E, direction signs are provided for both Taxiways B and F since an aircraft could be expected to turn onto any of these taxiways.

- On Taxiway F, a direction sign is provided only for Taxiway B since an aircraft would not normally proceed from Taxiway F onto Taxiway E.

- Taxiway direction signs for Taxiways G and H have been provided on the north side of the runway to provide guidance to pilots crossing the runway from Taxiway C. Location signs have also been placed on the back of the holding position signs on these two taxiways so pilots can confirm their location on a taxiway. A direction sign has not been provided for Taxiway C since pilots crossing from Taxiways G and H have one choice. A location sign has been added to the back of the runway hold position sign so pilots can confirm they are on Taxiway C.

- Aircraft departing the apron on Taxiways C and F arrive at these taxiways from various directions depending upon their gate position. Some aircraft approach these taxiways by taxiing along the edge of the apron, while others approach these taxiways straight on. Direction signs have been placed on the edge of the apron for the former case while location signs have been installed on these taxiways for the latter case.

- In the past, the airport has had problems with international airline pilots getting lost as they taxied to the international terminal. For this reason, the air traffic control tower developed a preferred routing for these pilots. The airport operator has decided to install destination signs to indicate this preferred routing in addition to the taxiway direction signs. At the intersection of Taxiway B and C and the intersection of Taxiway B, E and F, destination signs that indicate the direction of the international terminal are located on the far side of the intersection on the right side of the taxiway. This is permissible in accordance with the signing conventions provided in Paragraph 12.c. (5). The destination sign at the intersection of Taxiway B and D is located on the far side of the intersection even though it indicates a turn. This is permissible in accordance with the signing conventions provided in Paragraph 12.j. since Taxiway D ends at this intersection. Taxiway direction signs also are provided on Taxiway D prior to the intersection.

**3. EXAMPLE 2—AIRPORT WITH TWO INTERSECTING RUNWAYS.** Figure A-2 involves an airport with two intersecting runways. The main runway, 9-27, is 8,500 feet in length, while the crosswind runway, 18-36, is 5,000 feet in length. The air carriers use only Runway 9-27, while the commuters and general aviation use both runways. The air carrier and commuter terminal is on the south side of the airport, and all general aviation facilities are located on the north side. The airport has an air traffic control tower. When general aviation aircraft are landing on Runway 9, air traffic control will often ask them to hold short of Runway 18-36 so it can be used for a general aviation departure.

With this background, the signs included in this system are as follows:

- Holding position signs along with taxiway location signs are installed on all taxiways that intersect the runways. Even though it is possible to cross the runway at the thresholds for Runway 27 and Runway 36, a sign with only one runway designation is installed at each of the runway holding positions located on these taxiways. Since air traffic does not use these taxiways to cross these runways, there is not an operational need to have two runway destinations on these signs (see Paragraph 5.a.).

- Holding position signs have been installed at the intersection of the two runways. Since Runway 9 is used for "land, hold short" operations, two signs are installed at its intersection with Runway 18-36.

- Exit signs are installed for the taxiways where aircraft normally exit. For Runway 9, exit signs have been installed at Taxiways D, F, G, and A. Since Taxiway F crosses this runway, it is necessary to install an exit sign on both the left and right side of the runway. For Runway 27, exit signs are installed on Taxiways A, B, C, and D. Exit signs are installed on Runways 18 and 36 at Taxiway A as well as at the runway ends.

- Because of the straightforward layout of this airport, the airport operator, in conjunction with the users and the FAA, determined that taxiway direction signs were only needed at two intersections. This airport's configuration requires the majority of the aircraft to taxi through or turn at the intersection of Taxiways A and F. For this reason,



direction signs and the associated location sign were installed on each leg of this intersection. A direction sign was also installed on Taxiway E at its intersection with Taxiway A. Since the left side of Taxiway E is contiguous with the air carrier apron at this point, the sign is installed on the right side of Taxiway E.

- A location sign is installed on Taxiway A where it leaves the west side of the air carrier apron. A similar sign is not included on the east side since the location sign installed with the runway holding position sign is sufficient to provide the location information to the pilot. A location sign is installed on Taxiway E where it leaves the air carrier apron. Location signs have also been installed on Taxiways F and G where they leave the general aviation apron.

- It was determined that there was no need to install runway safety area/OFZ boundary signs on this airport.

**4. EXAMPLE 3—AIRPORT WITH A SINGLE RUNWAY.** Figure A-3 involves an airport with a single runway and parallel taxiway. The runway is 4,500 feet in length. The airport does not have an air traffic control tower. The apron serves both general aviation and the scheduled commuter.

With this background, the signs included in this system are as follows:

- Holding position signs along with taxiway location signs are installed on all taxiways that intersect the runway.
- Exit signs have been installed for both runway directions at Taxiways B and D as well as at the end of each runway for Taxiway A.

- Direction signs for Taxiway A have been installed at the intersections of Taxiways B, C, and D. Direction signs for Taxiway C have also been installed on Taxiway A. (*Note:* Since this airport does not have a control tower, an analysis could have concluded that it was advantageous to install destination signs in lieu of direction signs.) Location signs have not been installed as part of the direction sign arrays, since, in the case of Taxiways B and D, location signs were installed on the back of the runway holding position array. For the intersection of Taxiways A and C, it was determined by the airport operator in conjunction with the users and the FAA, that location signs were not needed since this location should be obvious to the pilot. This determination was based on the relatively simple configuration of this airport and the fact that there is only one parallel taxiway and one apron with a single taxiway providing access to it.

- Location signs have been placed along Taxiway A for aircraft taxiing from the runway ends toward the terminal.

- An outbound destination sign for the runway ends has also been placed at the intersection of Taxiways A and C. Since this is a "T" intersection and direction signs are provided prior to the intersection, it is permissible to install this sign on the far side of the intersection (see Paragraph 12.j.). On the face of this sign, the runway numbers are separated by a vertical border rather than a dash since this is a destination sign. In this case, each runway designation and its associated arrow is considered to be a separate panel and, therefore, separated by a vertical border (see Paragraph 12.i.).



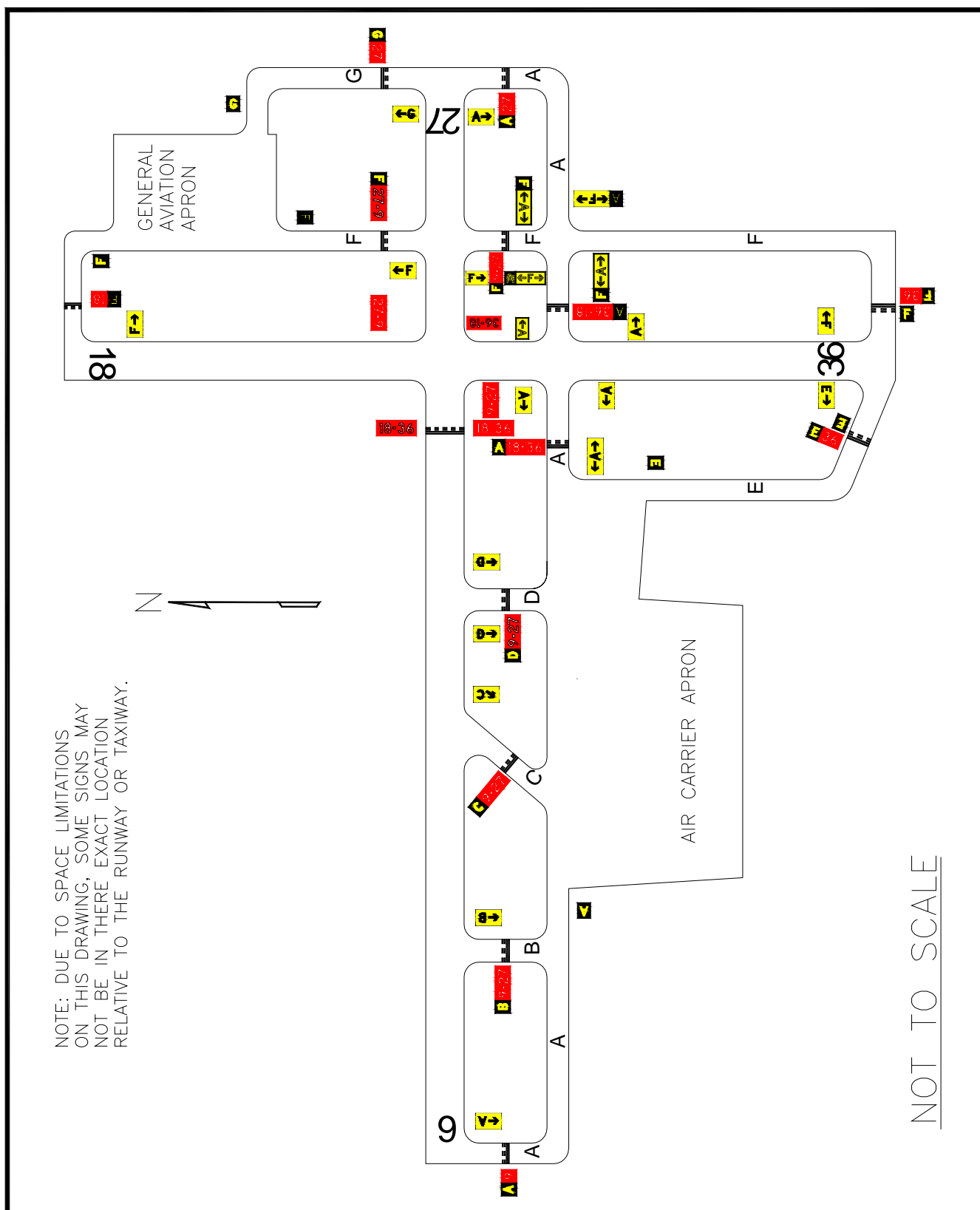


Figure A-2. Signing Example 2—Airport with Two Intersecting Runways

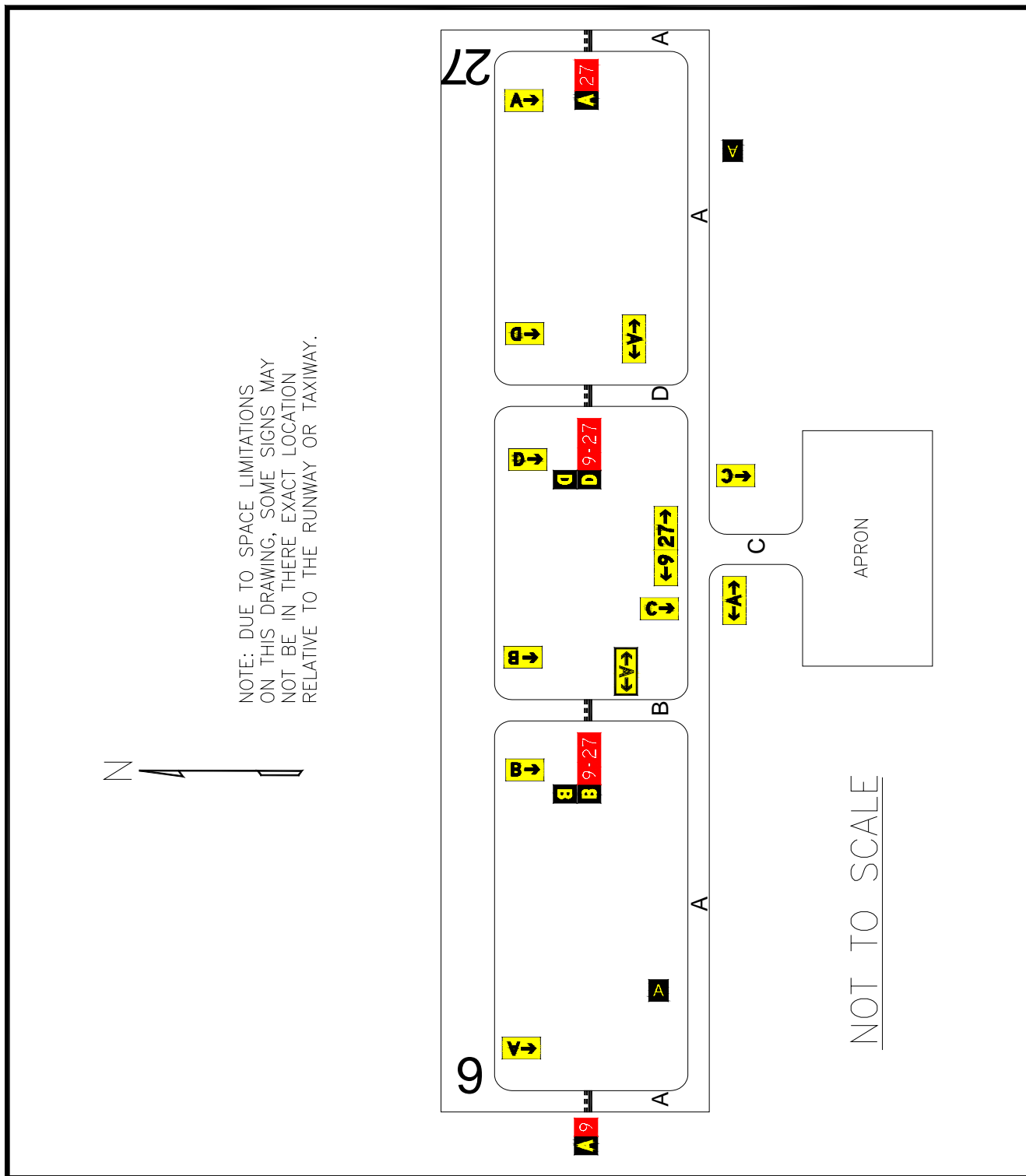


Figure A-3. Signing Example 3—Airport with a Single Runway